

**REMARKS**

By the Office Action mailed on September 9, 2002,

By the Office Action of September 9, 2002, Claims 1-25 are pending in the Application, Claims 10-17 withdrawn, and Claims 1-9, 18-25 rejected. By the present Response and Amendment, the Applicant clarifies the invention, and in so doing, overcomes the rejection of the Claims in view of the cited art.

**1. Election/Restriction**

Applicant affirms the election of Group I, Claims 1-9, 18-25.

**2. Claim Rejections Under 35 USC § 112(2)**

Claims 1-9 are currently rejected under 35 USC §112(2) as failing to particularly point out and distinctly claim the subject matter for failing to make it clear as to what "stream" is referred to in Claim 1. Applicant has removed the term "stream" and believes that the Claim is now in condition for allowance.

Claims 1-9 are also objected to because it is unclear what limitations are implicit in recitation of the expression "colloidal silica." Applicant contends that the removal of potassium ions from a quantity of potassium silicate via an ion exchange results in the formation of "colloidal silica"; therefore, Applicant contends that no limitations are implicit in the recitation of the expression "colloidal silica".

**3. Claim Rejections Under 35 U.S.C. § 103(a)**

The Examiner rejects Claims 1-9, 18-25 under 35 U.S.C. § 103(a) as being unpatentable over the ZACSTL E200 potassium silicate solution in view of U.S. Patent No. 6,334,880 to *Negrych* and U.S. Patent No. 5,458,812 to *Brekau*. The Examiner notes that *Brekau* describes an ultrafiltration process which accomplishes the "obvious advantage of reduced transportation and

storage costs". Applicant contends that *Brekau* only discloses concentrating the colloidal silica; however, Claims 1-9 and 18-25 use the ultrafiltration process to remove sodium from the colloidal silica by washing the colloidal silica with water. The process described in *Brekau* does not disclose washing the colloidal silica with discrete amounts of water and requires the continuous flow of an alkaline soda waterglass solution. *Brekau* therefore does not teach the removal of excess sodium from the colloidal silica and does not teach or make obvious the claimed invention.

The Examiner also rejects Claims 1-9, 18-25 under 35 U.S.C. 103(a) as being obvious over WO 99/01377 to *Kempo* in view of either U.S. Patent No. 2,244,325 to *Bird* and U.S. Patent No. 3,969,266 to *Iler*. The process described in *Kempo* does not disclose washing the colloidal silica in order to decrease the sodium content. The ultrafiltration described in *Kempo* is designed instead to concentrate the colloidal silica.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must be found in the prior art and not based on applicant's disclosure. See *In re Vaack*, 947 F.2d 488 (Fed. Cir. 1991).

The Office Action fails to meet the requirements for a 35 U.S.C. 103(a) rejection for Claims 1-9 because the cited art does not disclose or suggest washing the colloidal silica during the ultrafiltration process to remove sodium from the solution. Therefore, all of the claim

limitations are not taught by the cited art. In fact, a combination of the cited references would not produce colloidal silica with the claimed sodium content limitations.

The Office Action also fails to meet the requirements for a 35 U.S.C. 103(a) rejection for Claims 18-25 because the Examiner does not cite any art that relates to separation of the Potassium Hydroxide solution. The Action rejects Claims 18-25 by asserting that it would have been obvious to have regenerated the ion exchange resin and have recovered the potassium ion. However, the Examiner has not cited any relevant art to show that Claims 18-25 are obvious; therefore, it is not possible for the Examiner to have shown that there was a suggestion or motivation to combine references, an expectation of success, or that the prior art teaches or suggests all of the claim limitations.

**CONCLUSION**

By the present Response and Amendment, the Applicant believes that all pending claims are in condition for allowance. Accordingly, the Applicant respectfully requests early and favorable action. If the Examiner believes that there are any issues that can be resolved by a telephone conference, or that there are any informalities that can be corrected by an Examiner's amendment, please call Michael Kerns at (404) 885-3594.

Respectfully submitted,



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## Appendix A

In the Claims

1. (Once Amended) A method for producing high purity colloidal silica comprising the steps of:

providing a quantity of potassium silicate;

subjecting said quantity of potassium silicate [stream] to an ion exchange process to remove a first portion of potassium therefrom to produce a quantity of colloidal silica; and

washing [subjecting] said quantity of colloidal silica with water in an [to] ultrafiltration device [to remove a portion of sodium therefrom] to produce a quantity of high purity colloidal silica.

8. (Once Amended) The method of Claim 1, wherein said ultrafiltration step includes the step[s] [concentrating said colloidal silica and] of washing said colloidal silica with deionized water.

18. (Once Amended) A method for producing high purity colloidal silica and a high purity potassium salt, said method comprising the steps of:

providing a quantity of potassium silicate;

subjecting said quantity of potassium silicate to an ion exchange process to remove a first portion of potassium therefrom to produce a quantity of colloidal silica and a potassium enriched ion exchange resin;

washing [subjecting] said quantity of colloidal silica with water in an [to] ultrafiltration device [to remove a portion of sodium therefrom] to produce a quantity of high purity colloidal silica;

regenerating said potassium rich ion exchange resin with an acid to produce a potassium salt stream; and

subjecting said potassium salt stream to evaporation and crystallization to remove a portion of sodium therefrom to produce a quantity of high purity potassium salt.